

ABSTRACT

An apparatus and method for monitoring and reporting downhole bit failure. Sensors are located on a sub assembly (which is separate from the drill bit itself but located above it on the drill string). Strain measurements are taken from the sensors to detect changes in induced bending and axial stresses which are related to a roller cone bearing failure. As a cone begins to fail, the average share of the total load on the bit that the failing cone can support changes, which causes a change in the bending strain induced by the eccentric loading of the cone.

10035360 1003601